REMARKS

Claims 1-41 are now pending in this application. Claims 1, 8, 15, and 22 are independent. Claims 29-41 have been added, claim 22 has been amended, and no claims have been canceled by this amendment.

Anticipation Rejection Over Cotteverte et al

Withdrawal of the rejection of claims 1-28 under 35 U.S.C. 102(e) as being anticipated by Cotteverte et al. (US 6,542,682 B2) is requested.

Applicant notes that anticipation requires the disclosure, in a prior art reference, of each and every limitation as set forth in the claims.[1] There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. §102.[2] To properly anticipate a claim, the reference must teach every element of the claim.[3] "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".[4] "The identical invention must be shown in as complete detail as is contained in the ...claim."[5] In determining anticipation, no claim limitation may be ignored.[6]

The Examiner has failed to meet the threshold requirements for anticipation, as discussed below.

In one embodiment, the applied art, Cotteverte et al., discloses an active photonic crystal waveguide device in which propagation of the optical signal is controlled by changing a dimension of the planar photonic crystal structure. In another embodiment, the propagation of the optical signal is controlled by inserting rods into the columnar holes of the planar photonic

[1] *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985).
[2] *Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).
[3] *See* MPEP § 2131.
[4] *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).
[5] *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).
[6] *Pac-Tex, Inc. v. Amerace Corp.*, 14 USPQ2d 187 (Fed. Cir. 1990).

crystal structure. In a third embodiment, Cotterverte et al. discloses that the propagation of the optical signal is controlled by filling the holes of the planar photonic crystal structure with fluid. See Cotterverte et al. at Abstract, col. 11, lines 6-39, and col. 14, line 9 through col. 15, line 64.

Further, at col. 11, line 16, Cotterverte et al. discloses the use of a piezoelectric substrate, which makes sense since they are relying on ***mechanical displacement*** to attain switching.

However, Cotterverte et al. is completely silent on controlling propagation of the optical signal by controlling or changing ***conductance*** along the coupling path.

In contrast, Applicants disclose the use of non-piezoelectric silicon as their substrate material, since the claimed invention changes conductance in order to induce an electro-optic effect to achieve switching.

That is, Applicants' invention, in various aspects, variously discloses and claims a device, system, and method that controls or changes ***conductance*** along the coupling path. In further aspects, conductance is changed along the coupling path by electrical carrier injection or by optically inducing the production of electron-hole pair.

Specifically, the applied art does not disclose an electro-optical switch wherein, among other features, "...a change in conductance along the coupling length provides electro-optical switching between the first and second waveguides", as recited in independent claim 1.

In addition, the applied art does not disclose a photonic bandgap integrated circuit wherein, among other features, "...a change in conductance along the coupling length provides electro-optical switching between the first and second waveguides", as recited in independent claim 8.

Further, the applied art does not disclose a coupled photonic crystal waveguided system wherein, among other features, "...a change in conductance along the coupling length provides electro-optical switching between said first and second photonic bandgap waveguides", as recited in independent claim 15.

Finally, the applied art does not disclose a method for providing an electro-optical switch that includes, among other features, "...changing a conductance along the coupling length to provide electro-optical switching between the first and second waveguides", as recited in independent claim 22, as amended.

As discussed above, the applied art is completely silent on controlling or changing the ***conductance*** along the coupling length.

Accordingly, since the applied art does not disclose all the limitations of the independent claims, withdrawal of the rejection and allowance of pending claims 1-41 are respectfully requested.

Amendment to Claim 22

The amendment to claim 22 is merely formal in nature, to ensure proper antecedent basis.

New Claims 29-41

Dependent claims 29-41 have been drafted to further avoid the applied art, and to further define that which Applicants regard as their invention. No new matter is involved with any new claim, as support may be found in the originally filed specification.

Conclusion

In view of the above amendment and remarks, Applicants believe that each of pending claims 1-41 in this application is in immediate condition for allowance. An early indication of the same would be appreciated.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number indicated below.

For any fees that are due, including fees for extensions of time and excess claims, the Director is hereby authorized to charge any fees or credit any overpayment during the pendency of this application to CBLH Deposit Account No. 22-0185, under Order No. 00131-00288-US2 from which the undersigned is authorized to draw.

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Respectfully submitted,

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